AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1) (Currently Amended) An induction sealing device which may be used for producing packages of pourable food products by transversely sealing a tube ~~(13)~~ of sheet packaging material comprising at least one layer ~~(12)~~ of induction heatable material covered with plastic material ~~(16)~~, said sealing device comprising:

- generating means ~~(3)~~ for generating an alternating power signal ~~S(ω)~~;

- at least one inductor ~~(4)~~ receiving the alternating power signal ~~S(ω)~~ to induce a parasitic electric current in said layer ~~(12)~~ and locally melt said plastic material ~~(16)~~ to form a transverse seal; and

- a matching circuit ~~(7)~~ for achieving optimum power transfer between said generating means ~~(3)~~ and said inductor ~~(4);~~

~~characterized in that~~ wherein said matching circuit ~~(7)~~ comprises an inductive-capacitive circuit, in which at least one inductive element ~~(23a; 23)~~ is connected to at least one variable-capacitance capacitive element ~~(20, 24, 25; 26, 27)~~; the capacitance of the capacitive element being adjustable so that the current-voltage phase angle is close to zero.

2) (Currently Amended) A sealing device as claimed in Claim 1, wherein said inductive element ~~(23)~~ and said capacitive element ~~(20, 24, 25, 26, 27)~~ are parallel to each other.

3) (Currently Amended) A sealing device as claimed in Claim 1 ~~or 2~~, wherein said capacitive element ~~(20, 24, 25, 26, 27)~~ comprises at least one main capacitor ~~(20)~~, and a number of auxiliary capacitors ~~(24, 25, 26, 27)~~ selectively connectable/disconnectable parallel to said main capacitor ~~(20)~~.

4) (Currently Amended) A sealing device as claimed in Claim 3, wherein switching devices ~~(24a, 25a, 26a, 27a)~~ are connected to respective auxiliary capacitors ~~(24, 25, 26, 27)~~ to switch respective auxiliary capacitors ~~(24, 25, 26, 27)~~ on/off.

5) (Currently Amended) A sealing device as claimed in Claim 4, wherein each switching device ~~(24a, 25a, 26a, 27a)~~ comprises a first and a second IGBT transistor ~~(40a, 40b)~~ having emitters ~~(E)~~ connected to each other, and collectors ~~(C)~~ communicating respectively with an electric line ~~(21)~~ communicating with the main capacitor ~~(20)~~, and with an end terminal of a respective auxiliary capacitor ~~(24-27)~~; the gates ~~(G)~~ of said IGBT transistors ~~(40a, 40b)~~ being connected to each other, and receiving a voltage command V_{da} to turn said IGBT transistors ~~(40a, 40b)~~ on/off.

6) (Currently Amended) A sealing device as claimed in Claim 5, wherein at least one resistor ~~(46)~~ is interposed between the gates ~~(G)~~ and the emitters ~~(E)~~ of

the IGBT transistors ~~(40a, 40b)~~; said resistor ~~(46)~~ ensuring discharge of the current stored in the internal capacitors of the IGBT transistors when these are off.

7) (Currently Amended) A sealing device as claimed in Claim 5, wherein at least one Zener diode ~~(48)~~ is interposed between the gate ~~(G)~~ and the emitter ~~(E)~~ of each IGBT transistor ~~(40a, 40b)~~; said Zener diode ~~(48)~~ limiting the voltage V_{ga} of the IGBT transistor to a predetermined maximum value.

8) (Currently Amended) A sealing device as claimed in Claim 1, wherein said inductive element ~~(23a; 23)~~ has a variable inductance value; said inductance value being regulated so that the impedance of said matching circuit assumes a value close to an optimum impedance value Z_{ott}, e.g. of 50 ohms, to maximize power transfer from said generating means ~~(3)~~ to said inductor ~~(4)~~.

9) (Currently Amended) A sealing device as claimed in Claim 8, wherein said inductive element ~~(23a; 23)~~ comprises a transformer ~~(23)~~ having a primary winding ~~(23a)~~ with a number of inputs ~~(50)~~ associated with respective turns and so producing, when selected, different transformation ratios of the transformer ~~(23)~~.

10) (Currently Amended) An induction sealing method which may be used for producing packages of pourable food products by transversely sealing a tube ~~(13)~~ of sheet packaging material comprising at least one layer ~~(12)~~ of induction-heatable material covered with plastic material ~~(16),~~ said method comprising the steps of:

- generating ~~(3)~~ an alternating power signal ~~S(ω)~~ by means of a generator ~~(3)~~;

- supplying said alternating power signal ~~S(ω)~~ to at least one inductor ~~(4)~~ to induce a parasitic electric current in said layer ~~(12)~~ and locally melt said plastic material ~~(16)~~ to form a transverse seal; and

- optimizing power transfer between said generator ~~(3)~~ and said inductor ~~(4)~~ by means of a matching circuit ~~(7)~~;

~~characterized in that~~ wherein said optimizing step comprises ~~the step of~~ adjusting the capacitance of at least one capacitive element ~~(20, 24, 25, 26, 27)~~ connected to at least one inductive element ~~(23a, 23)~~ so that the current-voltage phase angle is close to zero.

11) (Currently Amended) A sealing method as claimed in Claim 10, and comprising the step of regulating the inductance value of said inductive element so that the impedance seen by said generator assumes a value close to an optimum impedance value Z_{ott}, e.g. of 50 ohms, to maximize power transfer from said generator ~~(3)~~ to said inductor ~~(4)~~.

12. (New) A sealing device as claimed in Claim 2, wherein said capacitive element comprises at least one main capacitor, and a number of auxiliary capacitors selectively connectable/disconnectable parallel to said main capacitor.